

ENVIRONMENTAL  
PROTECTION

OCT 27 1999

**DECISION DOCUMENT**  
**108-20a Ethylene Oxide Spill Impoundment, SWMU B-28a**  
**Hawthorne Army Depot**  
**Hawthorne, Nevada**  
**October 1999**

**1. PURPOSE of DECISION DOCUMENT**

**1.1 Introduction**

This decision document describes the rationale for the remedial action at, and closure of, Solid Waste Management Unit (SWMU) B-28a, 108-20a Ethylene Oxide Spill Impoundment at the Hawthorne Army Depot (HWAD), Hawthorne, Nevada. This decision document was developed by the U.S. Army Corps of Engineers, Sacramento District (USACE), HWAD, and Day & Zimmermann Hawthorne Corporation, with support from the Nevada Department of Conservation and Natural Resources, Division of Environmental Protection (NDEP).

**1.2 Site Description & Background**

SWMU B-28a is a hypalon-lined surface impoundment, approximately 200 square feet and 8 feet deep.

The surface impoundment was designed to contain spills of propylene oxide, a fuel-air explosive, from Building 108-20, but has never been used for its intended purpose. However, it was used for evaporative disposal of several (possibly three) railroad tank car loads of a mixture of ethylene oxide and water (H. Millsap, 20 April 1994 personal communication [no documentation]). One of these waste water loads was known to have been disposed of in October 1982 (T. Erickson, 1 September 1993 personal communication).

Tetra Tech reviewed all previous work done for the Group B SWMUs and compiled an annotated bibliography for past work (Tetra Tech, 1993).

Tetra Tech performed a visual inspection of the site in November 1993. The impoundment was dry, and there was no evidence of staining. The liner appeared to be in good condition with no observable tears or holes. A discharge pipe was located east of the center of the impoundment, presumably running from Building 108-20. Small piles of sand had been placed on a grid pattern on the liner to prevent it from being blown away by the wind. The piles were dispersed in the vicinity of the discharge pipe, perhaps as a result of disturbance when the tank car of ethylene oxide was discharged to the impoundment.

In the late 1970s, the depth to ground water was estimated to be about 70-80 feet below the ground surface. The static ground water elevation measured in base supply well No. 7, located about 1,200 feet east of the site, was 4,071 feet above mean sea level (msl) in 1974 (Van Denburgh and Rush, 1975). The land surface elevation at the site is about 4,120 feet above msl. Tetra Tech conducted a base-wide ground water level

survey in March, 1994. Based on this survey, ground water at SWMU B-28a was estimated at an elevation of 4,060 feet msl (60 feet bgs).

### 1.3 Chemicals of Concern

Chemicals of concern at SWMU B-28a are in Table 1.

Table 1 - Summary of Chemicals of Concern

Chemicals of Concern	Rationale Behind Designation	Reference
Volatile Organic Compounds	Possible disposal of ethylene oxide.	H. Millsap 20 April 1994 T. Erickson 1 September 1993

## 2. SUMMARY of SITE RISK

Subsurface samples from cone penetrometer tests (CPT) were analyzed for volatile organic compounds (VOCs). VOCs detected in these samples included trichlorofluoromethane (FREON) (to 4.1 ug/kg), methylene chloride (to 11 ug/kg), and toluene (0.4 ug/kg). Methylene chloride was detected in the trip blanks accompanying these soil samples. FREON and toluene are also believed to be associated with the laboratory equipment/process rather than the soil conditions at the site, based on their frequency of occurrence in other trip blanks and samples analyzed on this project. Therefore, the levels of detected VOCs in the soil samples are not believed to represent contaminants at the site.

## 3. SUMMARY of REMEDIAL INVESTIGATIONS and REMEDIAL ACTIONS

### 3.1 Remedial Investigations

#### 3.1.1 Objectives

The objective of the investigation of SWMU B-28a was:

To determine the presence of ethylene oxide and VOCs in the near surface and subsurface soils at the site.

This objective was met.

#### 3.1.2 Planned and Actual Investigation

Planned and actual field activities are described in Table 2. Figure B-28a-2 shows the locations of the actual field investigation activities at SWMU B-28a. A permanent monument was installed and surveyed, and the SWMU boundaries delineated, at the locations shown on this figure. The

appendices for this report include HWAD proposed closure goals for soils, detection limits for the lab analyses, survey results, and photographs. All activities were conducted based on the Work Plan (Tetra Tech, 1994b), Site Safety and Health Plan (Tetra Tech, 1994c) and the Chemical Data Acquisition Plan (Tetra Tech, 1994d).

**Table 2 - Summary of Planned and Actual Field Investigation**

<b>Planned Investigation</b>	<b>Actual Investigation</b>	<b>Comments</b>
<b>Geophysics - Line locator</b>	<b>Geophysics - Line locator</b>	
Soil Gas Survey - 20 locations, 1 sample per location	Soil Gas Survey - Not conducted	Site inaccessible to soil gas equipment due to soft sand.
Subsurface Sampling - CPT <sup>a</sup> sounding at 2 locations to 25 ft. CPT sampling at 5 locations to 25 ft, 4 samples per location	Subsurface Sampling - CPT sounding at 2 locations to 25 ft. CPT sampling at 5 locations to 25 ft, 1 to 2 samples per location	Soil samples collected only in fine grained soil strata.
Surveying - GPS <sup>b</sup> at soil gas and CPT sample locations	Surveying - GPS at CPT sample locations	Soil gas not conducted.

<sup>a</sup>CPT = Cone penetrometer testing

<sup>b</sup>GPS = Global positioning system

Soil samples collected and analyses performed were as follows:

<u>Sample Location</u>	<u>Sample Depth (ft)</u>	<u>VOC Analyses</u>
Subsurface		
SB01	25	Y
SB02	11, 25	Y
SB03	11	Y
SB04	17	Y
SB05	11, 25	Y

### **3.1.3 Results**

Line locating confirmed that the discharge pipe entering the pit lead back to Bldg 108-20.

Two CPT soundings to a maximum depth of 25.5 feet were performed at the site. The stratigraphic interpretation from the CPT logs indicated inter-layered silty sand to gravelly sand.

Table 3 lists analytical results for all detected volatile organic compounds (VOCs) for subsurface soil sampling.

Table 3 - Summary of VOCs Analytical Results

Sample Number	Sampled Date	Sample Depth (ft)	VOCs (ug/kg) EPA Method 8260
<b>Subsurface Sampling</b>			
B28a-SB01-1-S	9-Aug-94	25.0-25.5	0.8 trichlorofluoromethane
B28a-SB02-1-S	9-Aug-94	11.0-11.5	0.9 trichlorofluoromethane
B28a-SB02-2-S	9-Aug-94	25.0-25.5	0.4 methylene chloride 1.0 trichlorofluoromethane 0.4 toluene
B28a-SB03-1-S	10-Aug-94	10.5-11.0	9.6 methylene chloride 4.1 trichlorofluoromethane
B28a-SB04-1-S	9-Aug-94	16.5-17.0	ND*
B28a-SB05-1-S	10-Aug-94	11.0-11.5	6.5 methylene chloride 4.1 trichlorofluoromethane
B28a-SB05-2-S	10-Aug-94	25.0-25.5	11.0 methylene chloride 3.9 trichlorofluoromethane

\*ND = Below laboratory method detection limit for all analytes

### 3.2 Remedial Actions

#### 3.2.1 Summary of Remedial Alternatives

This impoundment will continue to serve as containment for water in the event that the fire deluge system in Building 108-20 is activated. Therefore, the impoundment has been left in its current state.

#### 3.2.2 Summary of Remedial Actions

This pit was left in its current state to serve as containment for the above-mentioned fire deluge system. A photograph of this site's current condition is included at Appendix D.

#### 4. PUBLIC/COMMUNITY INVOLVEMENT

It is U.S. Department of Defense and Army policy to involve the local community throughout the investigation process at an installation. To initiate this involvement, HWAD has established a repository in the local public library which includes final copies of all past studies and documents regarding environmental issues at the facility. This repository will be maintained and updated with all future final documents as they are issued to HWAD.

HWAD has solicited community participation in establishment of the restoration advisory board (RAB). However, because of insufficient public response, HWAD has not formed a RAB. HWAD will continue to solicit community involvement.

#### 5. CONCLUSIONS and RECOMMENDATIONS

The HWAD proposed closure goals for all analytes are listed in Appendix A. These closure goals were used in evaluating the detected chemicals. Table 3, shown on page 4, lists the detected chemicals of concern in the soil samples.

Subsurface samples from the CPTs were analyzed for VOCs. VOCs detected in these samples included trichlorofluoromethane ([FREON] to 4.1 ug/kg), methylene chloride (to 11 ug/kg), and toluene (0.4 ug/kg). Methylene chloride was detected in the trip blanks accompanying these soil samples. FREON and toluene are also believed to be associated with the laboratory equipment/process rather than the soil conditions at the site, based on their frequency of occurrence in other trip blanks and samples analyzed on this project. Therefore, the levels of detected VOCs in the soil samples are not believed to represent contaminants at the site.

It is recommended that no further investigation be performed at this SWMU and that the site be closed with regard to the chemicals of concern and without land use restrictions.

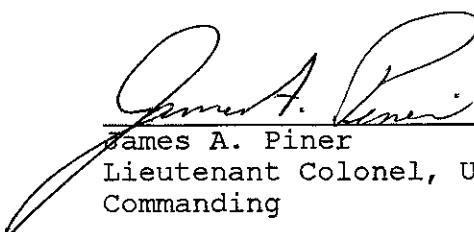
**6. DECLARATION**

The selected remedy is protective of human health and the environment. It has been shown that a complete exposure pathway to human health and the environment does not exist, and there is no potential for such an exposure pathway to be completed in the future.

**U.S. ARMY**

25 OCT 1999

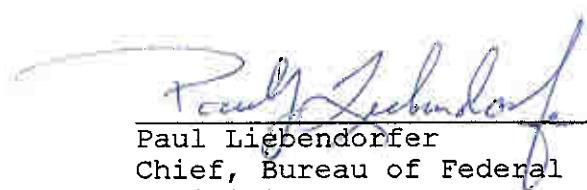
Date

  
James A. Piner  
Lieutenant Colonel, U.S. Army  
Commanding

**STATE OF NEVADA**

22 Nov 1999

Date

  
Paul Liebendorfer  
Chief, Bureau of Federal  
Facilities

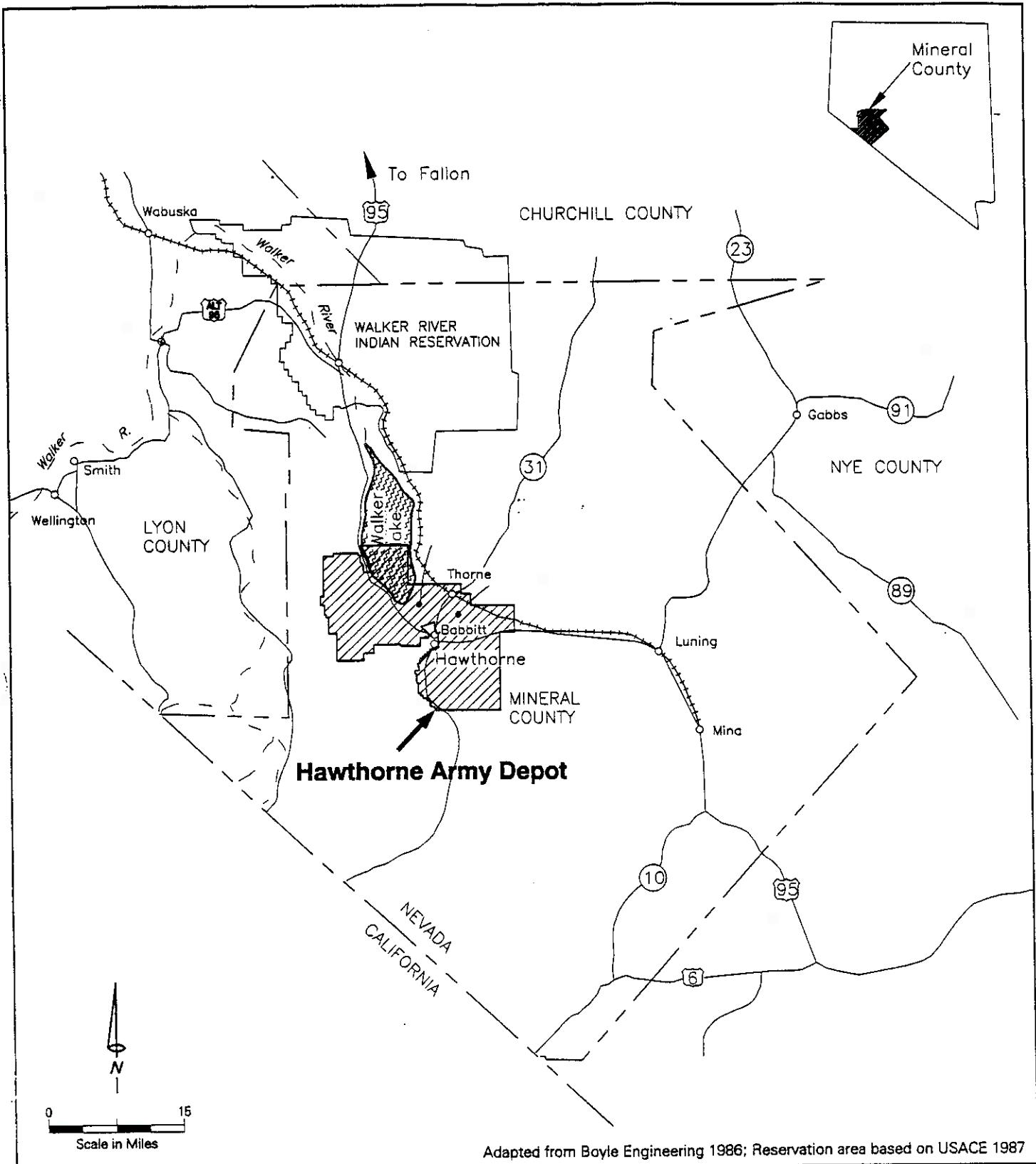
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- Tetra Tech. 1996. Hawthorne Army Depot Remedial Investigation Group B solid Waste Management Units, Final Closure Report, SWMU A-03 Coal Ash Landfill, SWMU B-28a 108-20a EO Spill Impoundment, SWMU B-28b 108-20b EO spill Impoundment, SWMU B-28c 104-8 EO Spill Impoundment, SWMU B-28d 104-10 EO Spill Impoundment; SWMU I-14 Bldg 46 Spill Site, SWMU J-04 107 Drum Storage, SWMU J-05 Dock 1 Landfill, SWMU J-06 Dock 2 Landfill, SWMU J-07 Dock 3 Landfill,

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SWMU J-08 Dock 4 Landfill, SWMU J-09 Dock 5 Landfill, SWMU J-10 Dock 6 Landfill, SWMU J-13 WADF South Dump, SWMU J-17 Thorne Drum Area, SWMU J-21 Bldg 97 Old Dock Area, SWMU J-22 50 Group Pits, SWMU J-24 Trench near 50-60.

## **Figures**



## Location Map

### Legend



Hawthorne Army Depot

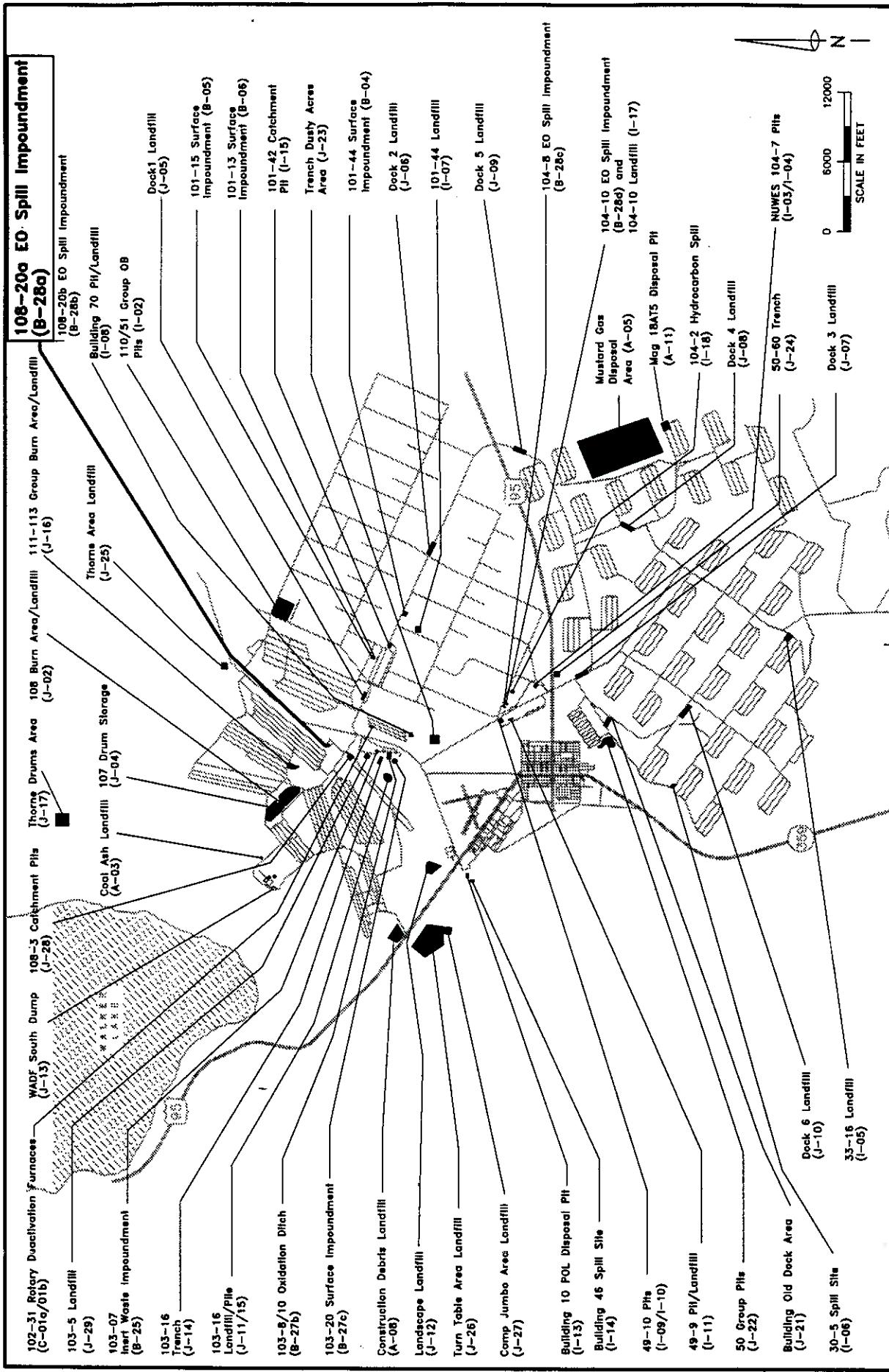
Hawthorne Army Depot  
Hawthorne, Nevada

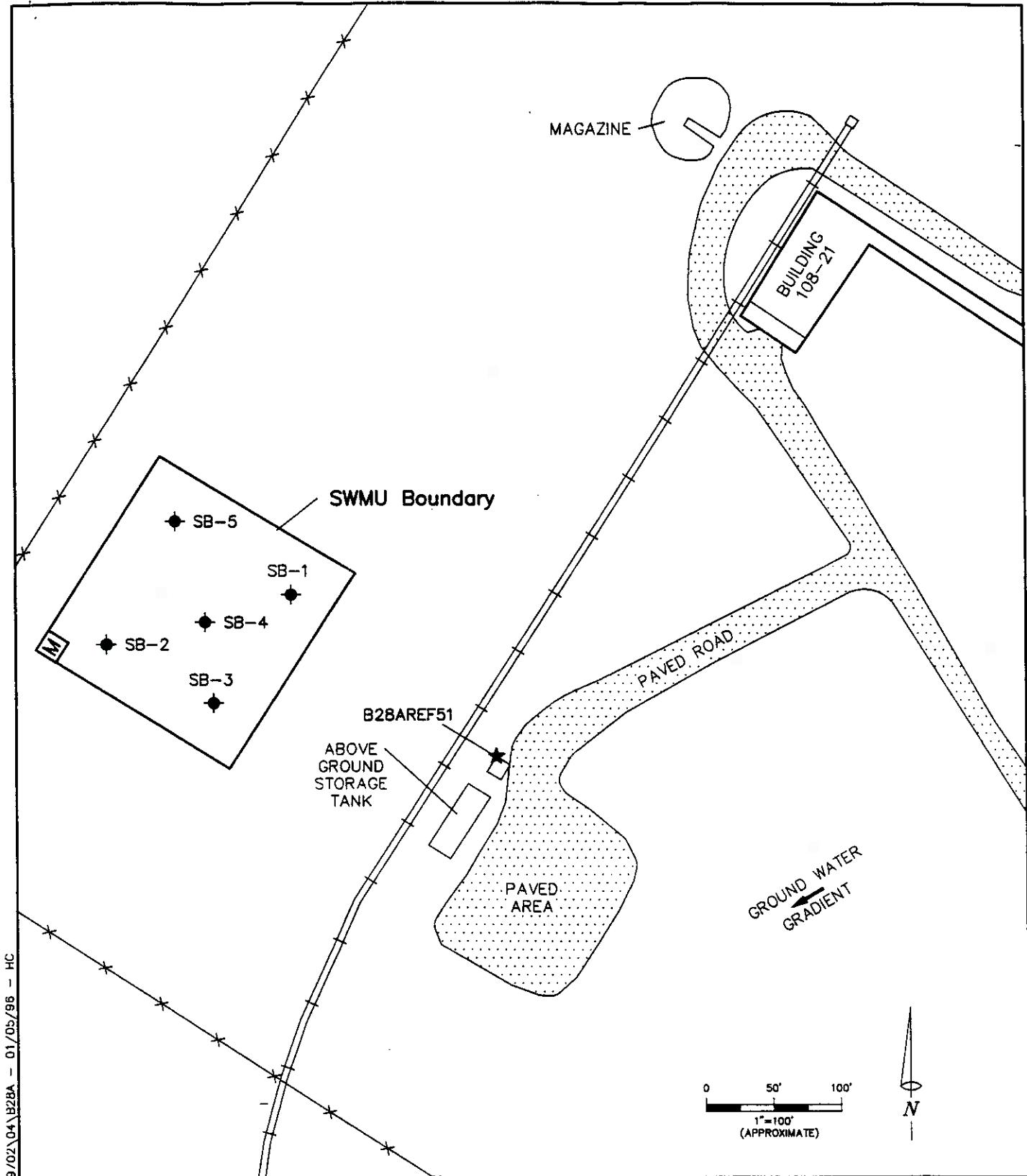


Tetra Tech, Inc.

**TETRA TECH**  
**Location Map**  
**Hawthorne Army Depot**

Hawthorne, Nevada  
**Figure SWMU-B-28a-1**





LEGEND:

- ◆ SB-X Soil boring location and number
- ★ SWMU reference point
- [M] Monument location

TETRA TECH

**Activity Map  
SWMU B-28a  
108-20a EO Spill Impoundment**

Hawthorne Army Depot  
Hawthorne, Nevada

## **Appendix A**

**Proposed Closure Goals**  
**Hawthorne Army Depot**  
**Hawthorne, Nevada**

Constituent of Concern	Chemical Classification	Carcinogenic (C) or Non-carcinogenic (NC)	HWAD Proposed Closure Goals for Soil (mg/kg)	HWAD Proposed Closure Goal Source
Nitrate	Anion	NC	128,000	Calculated Subpart S <sup>a</sup>
2-Amino-dinitrotoluene	Explosive	NC	-	NA <sup>b</sup>
4-Amino-dinitrotoluene	Explosive	NC	-	NA
1,3-Dinitrobenzene	Explosive	NC	8	Calculated Subpart S
2,4-Dinitrotoluene	Explosive	NC	160	Calculated Subpart S
2,6-Dinitrotoluene	Explosive	NC	80	Calculated Subpart S
HMX	Explosive	NC	4,000	Calculated Subpart S
Nitrobenzene	Explosive	NC	40	Calculated Subpart S
Nitrotoluene (2-, 3-, 4-)	Explosive	NC	800	Calculated Subpart S
RDX	Explosive	NC	64	Calculated Subpart S
Tetryl	Explosive	NC	800	Calculated Subpart S
1,3,5-Trinitrobenzene	Explosive	NC	4	Calculated Subpart S
2,4,6-Trinitrotoluene	Explosive	C	233	Calculated Subpart S
Aluminum	Metal	NC	80,000	Calculated Subpart S
Arsenic (cancer endpoint)	Metal	C & NC	30	Background <sup>c</sup>
Barium and compounds	Metal	NC	5,600	Calculated Subpart S
Beryllium and compounds	Metal	C	1	Background
Cadmium and compounds	Metal	NC	40	Calculated Subpart S
Chromium III and compounds	Metal	NC	80,000	Calculated Subpart S
Lead	Metal	NC	1000	PRG <sup>d</sup>
Mercury and compounds (inorganic)	Metal	NC	24	Calculated Subpart S
Selenium	Metal	NC	400	Calculated Subpart S
Silver and compounds	Metal	NC	400	Calculated Subpart S
Acenaphthene	PAH	NC	4,800	Calculated Subpart S
Benzo[a]anthracene	PAH	C	0.96	Calculated Subpart S
Benzo[a]pyrene	PAH	C	0.10	Detection Limit <sup>e</sup>
Benzo[b]fluoranthene	PAH	C	0.96	Calculated Subpart S
Benzo[k]fluoranthene	PAH	C	10	Calculated Subpart S
Chrysene	PAH	C	96	Calculated Subpart S
Dibenz[ah]anthracene	PAH	C	0.96	Calculated Subpart S
Fluoranthene	PAH	NC	3,200	Calculated Subpart S
Fluorene	PAH	NC	3,200	Calculated Subpart S
Indeno[1,2,3-cd]pyrene	PAH	C	-	NA
Naphthalene	PAH	NC	3,200	Calculated Subpart S
Pyrene	PAH	NC	2,400	Calculated Subpart S
Total Petroleum Hydrocarbons as Diesel (TPH-d)	PAH	C	100	NDEP Level Clean-up <sup>f</sup>
Polychlorinated biphenyls (PCBs)	PCBs	C	25	TSCA <sup>g</sup>
Bis(2-ethylhexyl)phthalate (DEHP)	SVOC	C	1,600	Calculated Subpart S
Bromoform (tribromomethane)	SVOC	C	89	Calculated Subpart S

**Proposed Closure Goals**  
**Hawthorne Army Depot**  
**Hawthorne, Nevada**

Constituent of Concern	Chemical Classification	Carcinogenic (C) or Non-carcinogenic (NC)	HWAD Proposed Closure Goals for Soil (mg/kg)	HWAD Proposed Closure Goal Source
Butyl benzyl phthalate	SVOC	NC	16,000	Calculated Subpart S
Dibromochloromethane	SVOC	C	83	Calculated Subpart S
Dibutyl-phthalate	SVOC	NC	8,000	Calculated Subpart S
Diethyl phthalate	SVOC	NC	64,000	Calculated Subpart S
Phenanthrene	SVOC	-	-	NA
Phenol	SVOC	NC	48,000	Calculated Subpart S
Acetone	VOC	NC	800	Calculated Subpart S
Anthracene	VOC	NC	24,000	Calculated Subpart S
Benzene	VOC	C	24	Calculated Subpart S
Bis(2-chloroisopropyl)ether	VOC	C	3,200	Calculated Subpart S
Bromomethane	VOC	NC	112	Calculated Subpart S
Carbon tetrachloride	VOC	C	5	Calculated Subpart S
Chlorobenzene	VOC	NC	1,600	Calculated Subpart S
Chloroform	VOC	C	115	Calculated Subpart S
Chloromethane	VOC	C	538	Calculated Subpart S
Dibromomethane	VOC	C	0.008	Calculated Subpart S
1,2-Dichlorobenzene	VOC	NC	7,200	Calculated Subpart S
1,4-Dichlorobenzene	VOC	C	18,300	Calculated Subpart S
Dichlorodifluoromethane	VOC	C	16,000	Calculated Subpart S
Ethylbenzene	VOC	NC	8,000	Calculated Subpart S
Methylene bromide	VOC	NC	800	Calculated Subpart S
Methylene chloride	VOC	C	4,800	Calculated Subpart S
2-Methylnaphthalene	VOC	-	-	NA
1,1,2,2-Tetrachloroethane	VOC	C	35	Calculated Subpart S
Tetrachloroethylene (PCE)	VOC	C & NC	800	Calculated Subpart S
Toluene	VOC	NC	16,000	Calculated Subpart S
1,1,1-Trichloroethane	VOC	NC	7,200	Calculated Subpart S
Trichloroethylene (TCE)	VOC	C & NC	480	Calculated Subpart S
Trichlorofluoromethane	VOC	NC	24,000	Calculated Subpart S
1,2,3-Trichloropropane	VOC	C	480	Calculated Subpart S
Vinyl chloride	VOC	C	0.37	Calculated Subpart S
Xylene Total (m-, o-, p-)	VOC	NC	160,000	Calculated Subpart S
2,3,7,8-TCDD	Dioxin	C	0.000005	Calculated Subpart S

<sup>a</sup> RCRA 55 FR 30870

<sup>b</sup> Not available

<sup>c</sup> Highest background concentration detected in 50 background soil samples

<sup>d</sup> Smucker, Stanford J. USEPA Region IX, Preliminary Remedial Goals, Second Half, Sep. 1995

<sup>e</sup> Method detection limit for Volatile Organic Compounds by EPA Method 8260 or  
Semi-Volatile Organic Compounds analyzed by EPA Method 8270

<sup>f</sup> Nevada Division of Environmental Protection

<sup>g</sup> Cleanup level for PCB spills in accordance with Toxic Substance and Control Act Spill Policy Guidelines 40 CFR 761

## **Appendix B**



**Summary Table of Analytical Data**

**SWMU B28a - 108-20 EO Spill Impoundment**

Hawthorne Army Depot

Hawthorne, Nevada

**FINAL**

**January 1996**



**FINAL**

<b>Sample ID</b>	<b>Sample Depth (ft)</b>	<b>Sample Date</b>	<b>Method</b>	<b>Analyte</b>	<b>Value</b>	<b>Units</b>	<b>Flag</b>
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	1,1,1,2-Tetrachloroethane	< 0.4	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	1,1,1-Trichloroethane	< 0.6	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	1,1,2,2-Tetrachloroethane	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	1,1,2-Trichloroethane	< 0.4	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	1,1-Dichloroethane	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	1,1-Dichloroethene	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	1,2,3-Trichloropropane	< 0.8	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	1,2-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	1,2-Dichloroethane	< 0.6	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	1,2-Dichloropropane	< 0.8	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	1,3-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	1,4-Dichlorobenzene	< 0.4	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	2-Chloroethylvinylether	< 0.6	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Benzene	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Benzyl chloride	< 0.6	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Bromobenzene	< 0.4	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Bromodichloromethane	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Bromoform	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Bromomethane	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Carbon Tetrachloride	< 0.6	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Chlorobenzene	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Chloroethane	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Chloroform	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Chloromethane	< 0.6	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	cis-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Dibromochloromethane	< 0.6	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Dibromomethane	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Dichlorodifluoromethane	< 0.1	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Ethylbenzene	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Methylene chloride	< 0.4	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Tetrachloroethene	< 0.6	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Toluene	< 0.4	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Total Xylene Isomers	< 0.6	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	trans-1,2-Dichloroethene	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	trans-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Trichloroethene	< 1	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Trichlorofluoromethane	0.8	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	8260	Vinyl chloride	< 0.2	ug/kg	
B28a-SB01-1-S	25.0-25.5	8/9/94	D2216	Moisture/TNFR	2	percent	

B28a-SB02-1-S	11.0-11.5	8/9/94	8260	1,1,1,2-Tetrachloroethane	< 0.4	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	1,1,1-Trichloroethane	< 0.6	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	1,1,2,2-Tetrachloroethane	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	1,1,2-Trichloroethane	< 0.4	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	1,1-Dichloroethane	< 0.2	ug/kg	



**Summary Table of Analytical Data**

**SWMU B28a - 108-20 EO Spill Impoundment**

Hawthorne, Nevada

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Sample ID	Sample Depth (ft)	Sample Date	Method	Analyte	Value	Units	Flag
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	1,1-Dichloroethene	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	1,2,3-Trichloropropane	< 0.8	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	1,2-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	1,2-Dichloroethane	< 0.6	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	1,2-Dichloropropane	< 0.8	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	1,3-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	1,4-Dichlorobenzene	< 0.4	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	2-Chloroethylvinylether	< 0.6	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Benzene	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Benzyl chloride	< 0.6	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Bromobenzene	< 0.4	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Bromodichloromethane	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Bromoform	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Bromomethane	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Carbon Tetrachloride	< 0.6	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Chlorobenzene	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Chloroethane	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Chloroform	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Chloromethane	< 0.6	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	cis-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Dibromochloromethane	< 0.6	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Dibromomethane	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Dichlorodifluoromethane	< 0.1	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Ethylbenzene	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Methylene chloride	< 0.4	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Tetrachloroethene	< 0.6	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Toluene	< 0.4	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Total Xylene Isomers	< 0.6	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	trans-1,2-Dichloroethene	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	trans-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Trichloroethene	< 1	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Trichlorofluoromethane	0.9	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	8260	Vinyl chloride	< 0.2	ug/kg	
B28a-SB02-1-S	11.0-11.5	8/9/94	D2216	Moisture/TNFR	5.4	percent	

B28a-SB02-2-S	25.0-25.5	8/9/94	8260	1,1,1,2-Tetrachloroethane	< 0.4	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	1,1,1-Trichloroethane	< 0.7	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	1,1,2,2-Tetrachloroethane	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	1,1,2-Trichloroethane	< 0.4	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	1,1-Dichloroethane	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	1,1-Dichloroethene	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	1,2,3-Trichloropropane	< 0.9	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	1,2-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	1,2-Dichloroethane	< 0.7	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	1,2-Dichloropropane	< 0.9	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	1,3-Dichlorobenzene	< 0.2	ug/kg	



**Summary Table of Analytical Data**

**SWMU B28a - 108-20 EO Spill Impoundment**

Hawthorne Army Depot

Hawthorne, Nevada

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<b>Sample ID</b>	<b>Sample Depth (ft)</b>	<b>Sample Date</b>	<b>Method</b>	<b>Analyte</b>	<b>Value</b>	<b>Units</b>	<b>Flag</b>
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	1,4-Dichlorobenzene	< 0.4	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	2-Chloroethylvinylether	< 0.7	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Benzene	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Benzyl chloride	< 0.7	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Bromobenzene	< 0.4	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Bromodichloromethane	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Bromoform	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Bromomethane	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Carbon Tetrachloride	< 0.7	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Chlorobenzene	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Chloroethane	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Chloroform	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Chloromethane	< 0.7	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	cis-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Dibromochloromethane	< 0.7	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Dibromomethane	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Dichlorodifluoromethane	< 0.1	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Ethylbenzene	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Methylene chloride	0.4	ug/kg	J
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Tetrachloroethene	< 0.7	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Toluene	0.4	ug/kg	J
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Total Xylene Isomers	< 0.7	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	trans-1,2-Dichloroethene	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	trans-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Trichloroethene	< 1	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Trichlorofluoromethane	1	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	8260	Vinyl chloride	< 0.2	ug/kg	
B28a-SB02-2-S	25.0-25.5	8/9/94	D2216	Moisture/TNFR	15	percent	

B28a-SB03-1-S	10.5-11.0	8/9/94	8260	1,1,1,2-Tetrachloroethane	< 0.4	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	1,1,1-Trichloroethane	< 0.6	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	1,1,2,2-Tetrachloroethane	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	1,1,2-Trichloroethane	< 0.4	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	1,1-Dichloroethane	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	1,1-Dichloroethene	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	1,2,3-Trichloropropane	< 0.8	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	1,2-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	1,2-Dichloroethane	< 0.6	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	1,2-Dichloropropane	< 0.8	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	1,3-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	1,4-Dichlorobenzene	< 0.4	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	2-Chloroethylvinylether	< 0.6	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Benzene	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Benzyl chloride	< 0.6	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Bromobenzene	< 0.4	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Bromodichloromethane	< 0.2	ug/kg	



**Summary Table of Analytical Data**

**SWMU B28a - 108-20 EO Spill Impoundment**

**Hawthorne Army Depot**



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Sample ID	Sample Depth (ft)	Sample Date	Method	Analyte	Value	Units	Flag
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Bromoform	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Bromomethane	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Carbon Tetrachloride	< 0.6	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Chlorobenzene	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Chloroethane	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Chloroform	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Chloromethane	< 0.6	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	cis-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Dibromochloromethane	< 0.6	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Dibromomethane	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Dichlorodifluoromethane	< 0.1	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Ethylbenzene	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Methylene chloride	9.6	ug/kg	U
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Tetrachloroethene	< 0.6	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Toluene	< 0.4	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Total Xylene Isomers	< 0.6	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	trans-1,2-Dichloroethene	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	trans-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Trichloroethene	< 1	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Trichlorofluoromethane	4.1	ug/kg	R
B28a-SB03-1-S	10.5-11.0	8/9/94	8260	Vinyl chloride	< 0.2	ug/kg	
B28a-SB03-1-S	10.5-11.0	8/9/94	D2216	Moisture/TNFR	3.2	percent	

B28a-SB04-1-S	16.5-17.0	8/9/94	8260	1,1,1,2-Tetrachloroethane	< 0.4	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	1,1,1-Trichloroethane	< 0.6	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	1,1,2,2-Tetrachloroethane	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	1,1,2-Trichloroethane	< 0.4	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	1,1-Dichloroethane	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	1,1-Dichloroethene	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	1,2,3-Trichloropropane	< 0.8	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	1,2-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	1,2-Dichloroethane	< 0.6	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	1,2-Dichloropropane	< 0.8	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	1,3-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	1,4-Dichlorobenzene	< 0.4	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	2-Chloroethylvinylether	< 0.6	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Benzene	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Benzyl chloride	< 0.6	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Bromobenzene	< 0.4	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Bromodichloromethane	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Bromoform	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Bromomethane	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Carbon Tetrachloride	< 0.6	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Chlorobenzene	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Chloroethane	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Chloroform	< 0.2	ug/kg	

**Summary Table of Analytical Data**



**SWMU B28a - 108-20 EO Spill Impoundment**

Hawthorne Army Depot  
Hawthorne, Nevada

**FINAL**

**January 1996**

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<b>Sample ID</b>	<b>Sample Depth (ft)</b>	<b>Sample Date</b>	<b>Method</b>	<b>Analyte</b>	<b>Value</b>	<b>Units</b>	<b>Flag</b>
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Chloromethane	< 0.6	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	cis-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Dibromochloromethane	< 0.6	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Dibromomethane	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Dichlorodifluoromethane	< 0.1	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Ethylbenzene	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Methylene chloride	< 0.4	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Tetrachloroethene	< 0.6	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Toluene	< 0.4	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Total Xylene Isomers	< 0.6	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	trans-1,2-Dichloroethene	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	trans-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Trichloroethene	< 1	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Trichlorofluoromethane	< 0.1	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	8260	Vinyl chloride	< 0.2	ug/kg	
B28a-SB04-1-S	16.5-17.0	8/9/94	D2216	Moisture/TNFR	2.1	percent	

B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	1,1,1,2-Tetrachloroethane	< 0.4	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	1,1,1-Trichloroethane	< 0.6	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	1,1,2,2-Tetrachloroethane	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	1,1,2-Trichloroethane	< 0.4	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	1,1-Dichloroethane	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	1,1-Dichloroethene	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	1,2,3-Trichloropropane	< 0.8	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	1,2-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	1,2-Dichloroethane	< 0.6	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	1,2-Dichloropropane	< 0.8	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	1,3-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	1,4-Dichlorobenzene	< 0.4	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	2-Chloroethylvinylether	< 0.6	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Benzene	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Benzyl chloride	< 0.6	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Bromobenzene	< 0.4	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Bromodichloromethane	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Bromoform	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Bromomethane	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Carbon Tetrachloride	< 0.6	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Chlorobenzene	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Chloroethane	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Chloroform	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Chloromethane	< 0.6	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	cis-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Dibromochloromethane	< 0.6	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Dibromomethane	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Dichlorodifluoromethane	< 0.1	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Ethylbenzene	< 0.2	ug/kg	



**Summary Table of Analytical Data**

**SWMU B28a - 108-20 EO Spill Impoundment**

**Hawthorne Army Depot**

**Hawthorne, Nevada**

**FINAL**

**January 1996**



**FINAL**

Sample ID	Sample Depth (ft)	Sample Date	Method	Analyte	Value	Units	Flag
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Methylene chloride	< 0.4	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Tetrachloroethene	< 0.6	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Toluene	< 0.4	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Total Xylene Isomers	< 0.6	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	trans-1,2-Dichloroethene	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	trans-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Trichloroethene	< 1	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Trichlorofluoromethane	0.7	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	8260	Vinyl chloride	< 0.2	ug/kg	
B28a-SB04-1-SD (DP1)	16.5-17.0	8/9/94	D2216	Moisture/TNFR	2.2	percent	

B28a-SB05-1-S	11.0-11.5	8/10/94	8260	1,1,1,2-Tetrachloroethane	< 0.4	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	1,1,1-Trichloroethane	< 0.6	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	1,1,2,2-Tetrachloroethane	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	1,1,2-Trichloroethane	< 0.4	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	1,1-Dichloroethane	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	1,1-Dichloroethene	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	1,2,3-Trichloropropane	< 0.8	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	1,2-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	1,2-Dichloroethane	< 0.6	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	1,2-Dichloropropane	< 0.8	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	1,3-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	1,4-Dichlorobenzene	< 0.4	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	2-Chloroethylvinylether	< 0.6	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Benzene	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Benzyl chloride	< 0.6	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Bromobenzene	< 0.4	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Bromodichloromethane	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Bromoform	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Bromomethane	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Carbon Tetrachloride	< 0.6	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Chlorobenzene	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Chloroethane	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Chloroform	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Chloromethane	< 0.6	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	cis-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Dibromochloromethane	< 0.6	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Dibromomethane	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Dichlorodifluoromethane	< 0.1	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Ethylbenzene	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Methylene chloride	6.5	ug/kg	U
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Tetrachloroethene	< 0.6	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Toluene	< 0.4	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Total Xylene Isomers	< 0.6	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	trans-1,2-Dichloroethene	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	trans-1,3-Dichloropropene	< 0.2	ug/kg	



**Summary Table of Analytical Data**

**SWMU B28a - 108-20 EO Spill Impoundment**

Hawthorne Army Depot

Hawthorne, Nevada

**FINAL**

**January 1996**



**FINAL**

Sample ID	Sample Depth (ft)	Sample Date	Method	Analyte	Value	Units	Flag
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Trichloroethene	< 1	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Trichlorofluoromethane	4.1	ug/kg	R
B28a-SB05-1-S	11.0-11.5	8/10/94	8260	Vinyl chloride	< 0.2	ug/kg	
B28a-SB05-1-S	11.0-11.5	8/10/94	D2216	Moisture/TNFR	5	percent	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	1,1,1,2-Tetrachloroethane	< 0.4	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	1,1,1-Trichloroethane	< 0.6	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	1,1,2,2-Tetrachloroethane	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	1,1,2-Trichloroethane	< 0.4	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	1,1-Dichloroethane	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	1,1-Dichloroethene	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	1,2,3-Trichloropropane	< 0.8	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	1,2-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	1,2-Dichloroethane	< 0.6	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	1,2-Dichloropropane	< 0.8	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	1,3-Dichlorobenzene	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	1,4-Dichlorobenzene	< 0.4	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	2-Chloroethylvinylether	< 0.6	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Benzene	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Benzyl chloride	< 0.6	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Bromobenzene	< 0.4	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Bromodichloromethane	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Bromoform	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Bromomethane	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Carbon Tetrachloride	< 0.6	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Chlorobenzene	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Chloroethane	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Chloroform	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Chloromethane	< 0.6	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	cis-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Dibromochloromethane	< 0.6	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Dibromomethane	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Dichlorodifluoromethane	< 0.1	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Ethylbenzene	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Methylene chloride	11	ug/kg	U
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Tetrachloroethene	< 0.6	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Toluene	< 0.4	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Total Xylene Isomers	< 0.6	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	trans-1,2-Dichloroethene	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	trans-1,3-Dichloropropene	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Trichloroethene	< 1	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Trichlorofluoromethane	3.9	ug/kg	R
B28a-SB05-2-S	25.0-25.5	8/10/94	8260	Vinyl chloride	< 0.2	ug/kg	
B28a-SB05-2-S	25.0-25.5	8/10/94	D2216	Moisture/TNFR	3.3	percent	

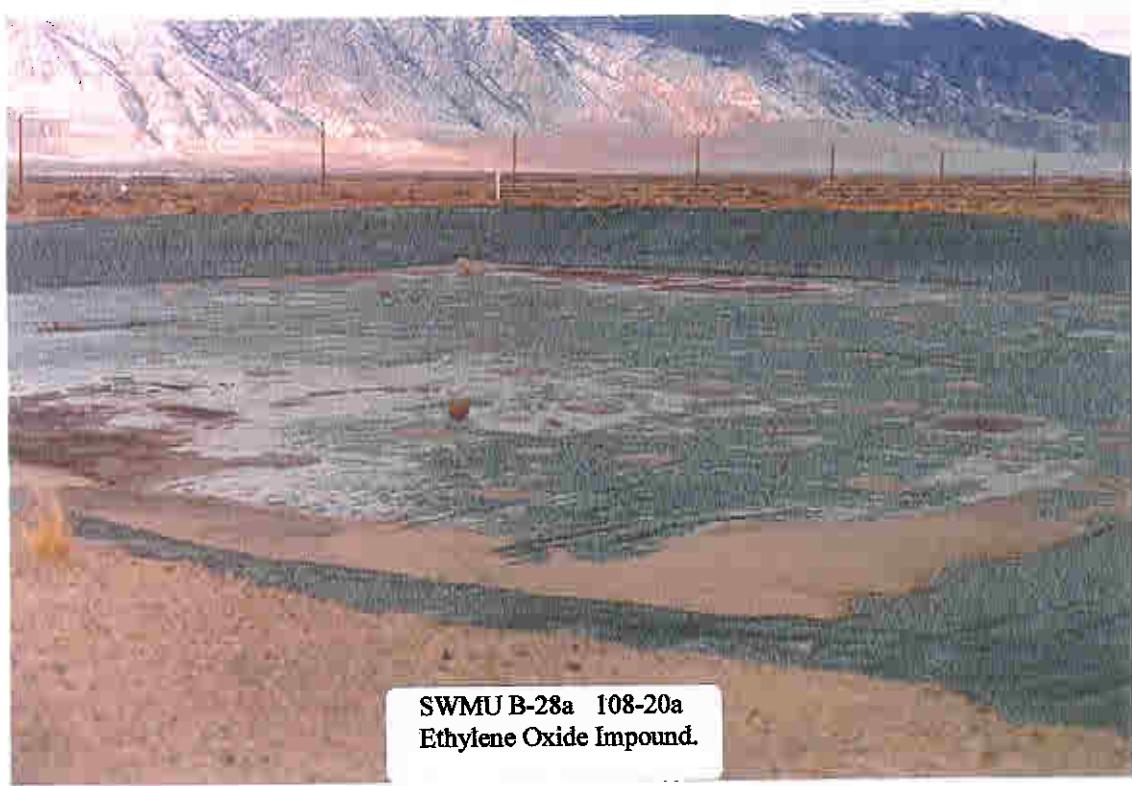
## **Appendix C**

**Survey Data at SWMU B-28a**  
**Hawthorne Army Depot**  
**Hawthorne, Nevada**

Point Name	Northing	Easting
B28AREF51	1393792.957	490597.5222
SB-1	1393914.807	490445.9222
SB-2	1393877.367	490307.8222
SB-3	1393833.267	490387.8422
SB-4	1393894.067	490381.5922
SB-5	1393969.467	490359.3222

Footnote: Survey data in Nevada State Plane West, 1927 coordinates.

## **Appendix D**



SWMU B-28a 108-20a  
Ethylene Oxide Impound.